

## **Supplementary Information**

### **A fast self-learning subspace reconstruction method for non-uniformly sampled nuclear magnetic resonance spectroscopy**

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## Appendix

We list three typical reconstruction results as shown in Figures S1-S3 which correspond to LRHM and LRHMF reconstruction in low, moderate and high fidelity, respectively. Tables S1-S3 show the correlation of the corresponding peaks in Figures S1-S3.

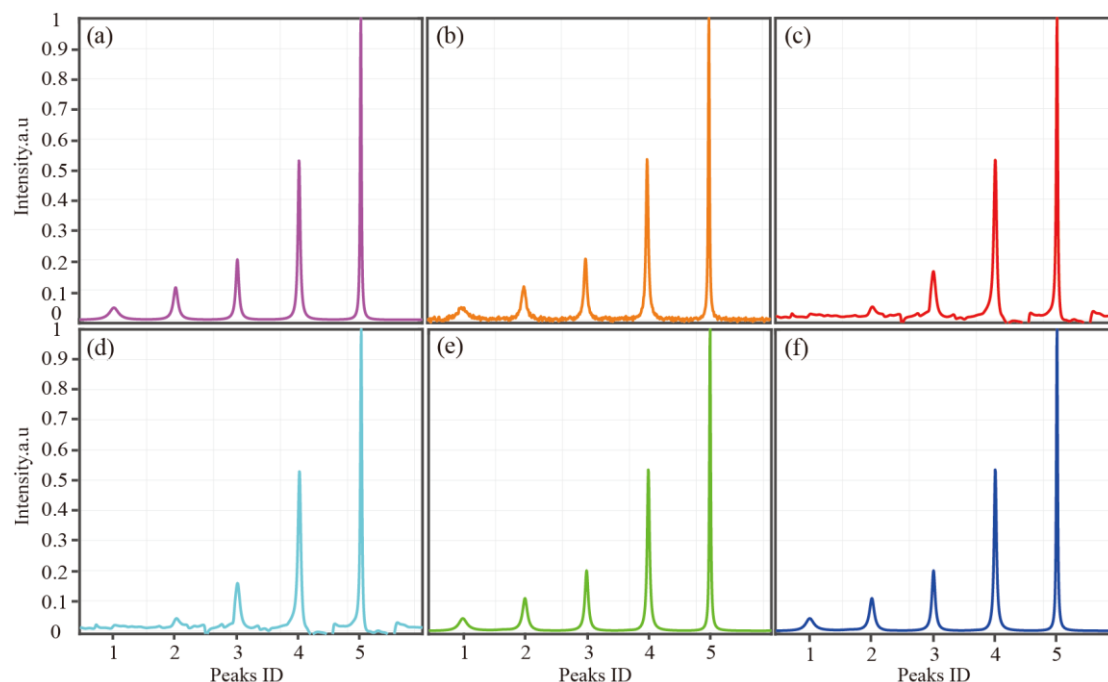


Figure S1. Low-fidelity reconstruction results for traditional methods. (a) The fully sampled spectrum; (b) is the noisy fully sampled spectrum; (c), (d), (e) and (f) are reconstructed spectra using the LRHM, LRHMF, SLS and SLSMF, respectively. Note: Reconstruction is performed on the synthetic 1D spectra with five peaks from 6% acquired data.

Table S1. Statistic of peaks correlations in Figure S1

Peak ID Method	1	2	3	4	5
LRHM	0.306	0.920	0.979	0.986	0.994
LRHMF	0.281	0.905	0.977	0.986	0.994
SLS	0.997	0.999	0.999	0.999	0.999
SLSMF	0.997	0.999	0.999	0.999	0.999

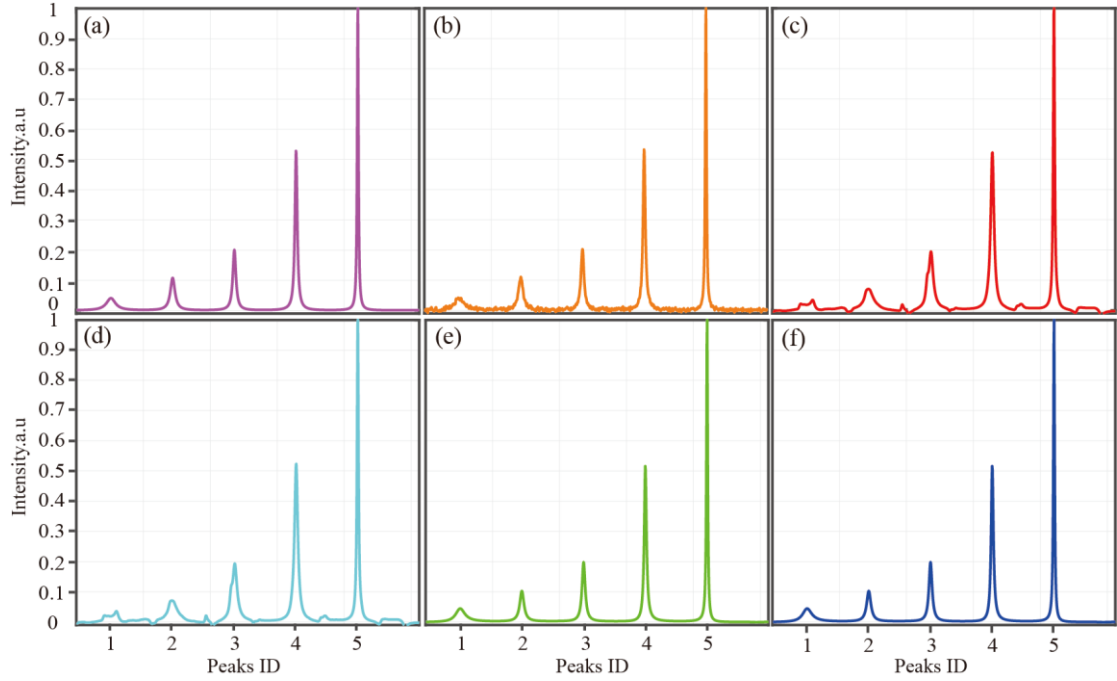


Figure S2. Moderate-fidelity reconstruction results for traditional methods. (a) The fully sampled spectrum; (b) is the noisy fully sampled spectrum; (c), (d), (e) and (f) are reconstructed spectra using the LRHM, LRHMF, SLS and SLSMF, respectively. Note: Reconstruction is performed on the synthetic 1D spectra with five peaks from 6% acquired data.

Table S2. Statistic of peaks correlations in Figure S2

Peak ID Method	1	2	3	4	5
LRHM	0.798	0.932	0.943	0.984	0.997
LRHMF	0.793	0.927	0.942	0.983	0.997
SLS	0.993	0.997	0.999	0.999	0.999
SLSMF	0.993	0.997	0.999	0.999	0.999

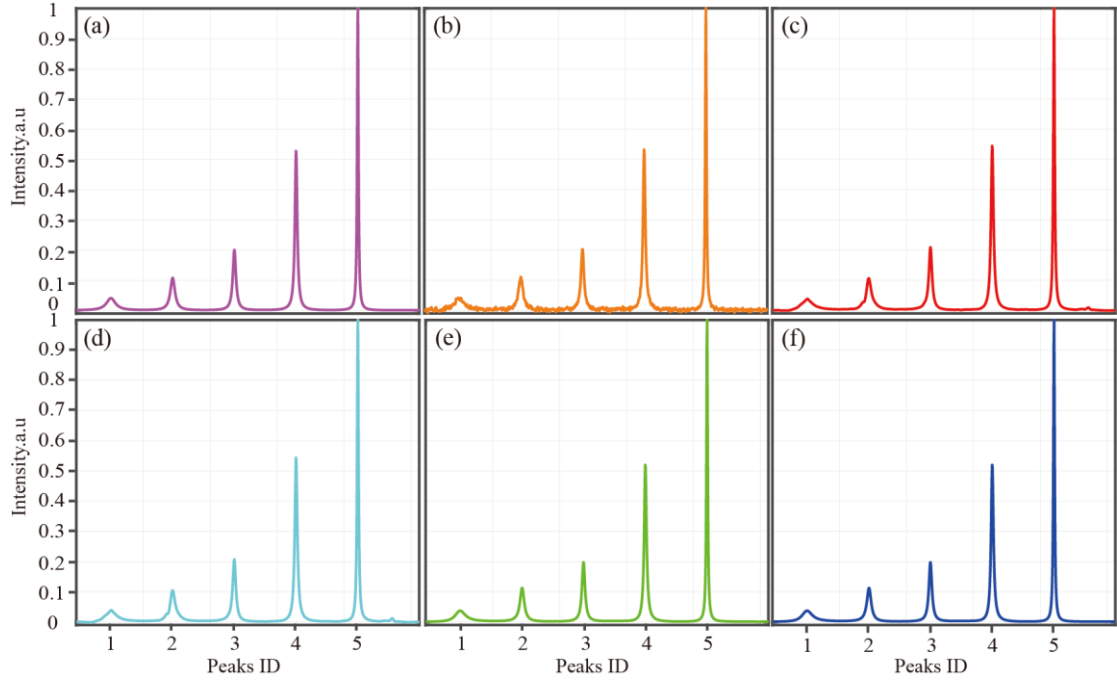


Figure S3. High-fidelity reconstruction results for traditional methods. (a) The fully sampled spectrum; (b) is the noisy fully sampled spectrum; (c), (d), (e) and (f) are reconstructed spectra using the LRHM, LRHMF, SLS and SLSMF, respectively. Note: Reconstruction is performed on the synthetic 1D spectra with five peaks from 6% acquired data.

Table S3. Statistic of peaks correlations in Figure S3

Peak ID Method	1	2	3	4	5
LRHM	0.977	0.995	0.998	0.999	0.999
LRHMF	0.977	0.994	0.998	0.999	0.999
SLS	0.979	0.998	0.999	0.999	0.999
SLSMF	0.978	0.998	0.999	0.999	0.999